Optimizing Energy Consumption for a Global Retail Leader with Edge AI

Client: A Global Retail Leader | Industry: Retail

Challenge

Gaining Control Over a Massive, Dispersed Energy Footprint

A leading global retailer with a vast network of thousands of stores faced a critical challenge: a lack of unified, real-time visibility into its energy consumption. The company's energy costs were a major operational expense, yet their data remained fragmented. Traditional manual meter readings were inefficient and provided only historical snapshots, making it impossible to identify and rectify energy waste in real-time.

Key pain points included:

Decentralized Data

Energy data was siloed across different locations and often collected manually, preventing a holistic view of consumption patterns

Hidden Inefficiencies

Without granular, real-time data, the company could not pinpoint the sources of energy waste, such as faulty HVAC systems or lighting left on after hours.

Reactive Maintenance

Equipment was often repaired only after it had failed, leading to downtime, increased costs, and further energy loss.

Complexity and Scale

The sheer number of stores and diverse metering devices made implementing a unified monitoring solution seem daunting and cost-prohibitive.

The client needed a scalable, intelligent, and easy-to-deploy solution that could provide a centralized view of their energy data, identify hidden inefficiencies, and enable proactive management to drive significant cost savings.

The Klyff Solution

Intelligent IoT Platform for Centralized Energy Monitoring

Klyff partnered with the global retailer to deploy its Intelligent IoT Platform, providing an end-to-end solution for real-time energy monitoring and management. The implementation leveraged Klyff's core strengths in seamless device connectivity, Edge AI, and powerful data visualization.

Key Components of the Klyff Implementation:

Unified Device Management & Connectivity

Klyff's platform was used to connect and manage a multitude of energy meters and sensors across all retail locations. Its robust support for standard industrial protocols (like MQTT and Modbus) allowed for rapid integration of existing hardware, eliminating the need for costly replacements and ensuring a streamlined rollout.

Edge AI for Anomaly Detection

Instead of sending all raw data to the cloud, Klyff's Edge AI models were deployed on gateway devices at each store. These models continuously analyzed the energy data streams locally, learning the normal consumption patterns for various appliances like HVAC systems and lighting. This allowed them to instantly detect and flag subtle anomalies, such as an unusual spike in power usage during off-peak hours, a sign of potential equipment malfunction.

Real-time Dashboards and Advanced Analytics

Klyff's platform ingested the processed data from the edge, providing a single, centralized view of the company's entire energy footprint. Custom dashboards offered intuitive visualizations, allowing energy managers to:

- Compare energy consumption between stores.
- Drill down into specific locations to view granular data.
- Identify the top energy-consuming devices at each site.
- Track savings from implemented efficiency measures.

Proactive Automation & Alerts

Klyff's powerful rule engine was configured to trigger automated alerts when the Edge AI detected an anomaly. For example, if a specific HVAC unit's consumption pattern deviated from its learned baseline, an alert would be immediately sent to a maintenance team, enabling them to investigate and perform a proactive repair before a complete failure occurred.

The Impact

Unlocking Efficiency and Driving Cost Savings

The implementation of Klyff's platform transformed the client's approach to energy management, delivering significant, measurable results:

Significant Cost Savings

By identifying and rectifying energy waste, the company achieved a **15% reduction in overall energy costs** across its retail portfolio within the first year.

Proactive Maintenance

Real-time anomaly detection and predictive alerts reduced unplanned equipment downtime, leading to a **20% decrease in maintenance-related costs**.

Enhanced Operational Visibility

The centralized platform provided a clear, actionable view of energy consumption, empowering managers to make data-driven decisions and implement targeted efficiency initiatives.

Scalability and Future-Proofing

The low-code, scalable architecture of the Klyff platform ensures the solution can easily expand to accommodate new stores and additional monitoring requirements, providing a foundation for future smart building initiatives.

Conclusion

Klyff – The Foundation for an Energy-Efficient Future

By partnering with Klyff, the global retail leader moved beyond reactive energy management to a proactive, intelligent, and highly efficient system. Klyff's unique combination of Edge AI, centralized data processing, and seamless connectivity not only delivered substantial financial savings but also provided the foundation for a more sustainable and intelligent business operation.

About Klyff

Klyff is a robust, Edge AI-enabled IoT platform for creating intelligent devices. It allows for device management, data collection, processing, visualization, and more. Klyff streamlines the creation of AI & machine learning models for edge hardware, allowing devices to make decisions and offer insight where data is gathered. Build data sets, train models, and optimize libraries to run directly on device; from the smallest microcontrollers to gateways with the latest neural accelerators (and anything in between).

Klyff's technology empowers developers to bring AI products to market & helps enterprise teams develop production-ready solutions delivering high business value in weeks instead of years. Powerful automations make it easier to build datasets & develop advanced AI for edge devices from MCUs to GPUs. Klyff combines scalability, fault-tolerance, and performance, so you will never lose your data.

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